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EXAMINER	
PAPPAS, PETER	

ART UNIT	PAPER NUMBER
2628	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/715,847	SERVANTIE, XAVIER	
	Examiner	Art Unit	
	Peter-Anthony Pappas	2628	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 September 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 November 2003* is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. Claim 21 is objected to because of the following informalities: the limitation "...in the form of t he convex surface..." (line 3) should read "...in the form of the convex surface..." Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-21 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. Claims 1-21 recite the limitation "...such that the distance...is as small as possible" (claim 1, lines 10-12). Said limitation is considered unclear because, for example, the range of acceptable distances or the distance that constitute "as small possible" is not made evident. For example, said distance could read on being zero, in which the lower surface of said area of intervisibility would be located on the terrain, or said distance could read on being any non-zero value considered "as small as possible" respective to the system it is implemented in. For the purposes of an art rejection the later (any non-zero value) is assumed to be true.

5. Claims 4 and 12 recite the limitation "...the first face or reverse face..." (line 2). There is insufficient antecedent basis for this limitation in the claim. It is believed that

claims 4 and 12 were intended to depend from claim 3. However, if claims 4 and 12 were amendment to depend from claim 3 they would be duplicate claims.

6. Claim 6 recites the limitation "...the lines of the grid..." (line 2). There is insufficient antecedent basis for this limitation in the claim. It is believed that claim 6 was intended to depend from claim 5.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3, 9-11, 16, 17, 19 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kershner et al. (U.S. Patent No. 5, 838, 262).

9. In regard to claim 1 it is noted that a preamble is generally not accorded any patentable weight where it merely recites the purpose of a process or the intended use of a structure, and where the body of the claim does not depend on the preamble for completeness but, instead, the process steps or structural limitations are able to stand alone. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

Kershner et al. teaches that one object of the present invention is to provide a virtual image display system and method for aircraft that is operative to identify threat systems that are proximal to the flight path of an aircraft when the aircraft is within a threat range of such threat systems. Another object of the present invention is to

provide a virtual image display system and method that is operative to generate real-time 3D threat envelopes (area of intervisibility) of identified threat systems. A further object of the present invention is to provide a virtual image display system and method that is operative to display real-time perspective video images of the 3D threat envelopes of identified threat systems for viewing by the pilot (col. 2, lines 45-58; Figs. 1, 3, 4).

Fig. 11 depicts an exemplary perspective video image 400 of a 3D threat envelope as produced by the VID system 10 and the method 200 according to the present invention (col. 20, lines 3-6). It is noted that Fig. 11 is also considered to illustrate 3D terrain. The interconnected polygons 360 of the perspective video image 400 of the 3D threat envelope are preferably displayed as semi-transparent so that the features of the external world are visible to the pilot through the interconnecting polygons 360 (col. 20, lines 33-37). It is noted that said 3D threat envelope, as illustrated in Fig. 11, is considered to comprise a top and bottom side, wherein said bottom side faces said terrain.

Kershner et al. teaches that the displayed perspective video image 400 of the 3D threat envelope and the airspace above the displayed perspective video image 400 effectively identify the threat zone of the threat system TS, i.e. airspace where the ownship is at risk of "detection" by the threat system TS. In contrast, the airspace below the displayed perspective video image 400 is defined as a safe zone, i.e. the ownship cannot be "detected" by the threat system TS (col. 21, lines 39-55). It is noted that the (non-zero) distance from each point of said bottom side of said 3D threat

envelope to the point of the terrain having the same geographical coordinates is considered to be as small as possible.

10. In regard to claim 2 the rationale disclosed in the rejection of claim 1 is incorporated herein (col. 20, lines 33-37).

11. In regard to claim 3 Kershner et al. teaches that two or three perspective video images of the corresponding 3D threat envelopes will be simultaneously displayed for viewing by the pilot and that there will be a certain degree of overlap between the simultaneously displayed perspective video images (area of intervisibility) depending upon the threat ranges utilized (col. 24, lines 38-43). Kershner et al. teaches that the interconnected polygons defining the first displayed perspective video image could be rendered in a first color, e.g. red, the interconnected polygons defining the second displayed perspective video image could be displayed in a second color, e.g. yellow, and, if required, the interconnected polygons defining the third displayed perspective video image could be rendered in a third color, e.g. orange. It will be appreciated that the foregoing visual differentiation schemes for the simultaneously displayed perspective video images could also be used in combination (col. 24, lines 66-67; col. 25, lines 1-9). It is noted a first face is considered to read the portion of a first displayed perspective video image displayed with a first color and a reverse face is considered to read on a portion of a second displayed perspective video image displayed with a second color, when said images are overlaid with one another.

12. In regard to claim 9 the rationale disclosed in the rejection of claim 1 is incorporated herein.

13. In regard to claim 10 the rationale disclosed in the rejection of claim 1 is incorporated herein. It is noted said system is considered to be mounted on an aircraft (Fig. 2). Kershner et al. teaches that current aircraft electro-optical display subsystems include helmet-mounted display (HMD) subsystems, head-up display (HUD) subsystems, and flat-panel (2D) display subsystems mounted in cockpit panels (col. 1, lines 48-52).

Kershner et al. teaches: means for the geographical localization of the aircraft in space comprising sensors (col. 3, lines 22-29; col. 6, lines 48-53; col. 7, lines 53-67; col. 8, lines 1-8; Fig. 4 – element 40); a navigation unit providing for the processing of data coming from chains of sensors (Fig. 4 – element 110); a mapping data base comprising a east the information on relief of the terrain as well as the nature and the positioning if the different potential threats (Fig. 4 – elements 50, 60, 70); a unit for the generation of mapping images making it possible, as a function of the data coming from the navigation unit as well as information given by a pilot (e.g. via a HMD), to generate the 3D image of the terrain and of the area of intervisibility (Fig. 4 – elements 102, 106); an MFD type display device positioned on the instruments panel enabling the real-time representation of the 3D image of the ground and of the area of intervisibility and of the electronic links connecting the different units of the system (Fig. 4 – element 30). It is noted that the instrument panel for said aircraft is considered to read on, at least in part, said HMD.

14. In regard to claim 11 the rationale disclosed in the rejection of claim 3 is incorporated herein.

15. In regard to claim 16 the rationale disclosed in the rejection of claim 2 is incorporated herein.

16. In regard to claim 17 the rationale disclosed in the rejection of claim 3 is incorporated herein.

17. In regard to claim 19 the rationale disclosed in the rejection of claim 2 is incorporated herein.

18. In regard to claim 20 the rationale disclosed in the rejection of claim 3 is incorporated herein.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 4-6 and 12-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kershner et al. (U.S. Patent No. 5, 838, 262), as applied to claims 1-3, 9-11, 16, 17, 19 and 20, in view of Foley et al. (Computer Graphics: Principles and Practice).

21. In regard to claim 4 Kershner et al. illustrates a grid (terrain grazing lines 350) in Fig. 11 (col. 24, lines 58-66). However, Kershner et al. fails to explicitly teach texture mapping said grid into said polygons. Foley et al. teaches that texture mapping can provide a more practical alternative to modeling with polygons or other geometric primitives (e.g. lines for a grid). It would have been obvious to one skilled in the art, at the time of the Applicant's invention, to utilize texture mapping for the application of said

grid of polygons, taught by Kershner et al., because through the utilization of texture mapping it would provide a more practical alternative to modeling, thus requiring less processing overhead for the generation of geometric primitives (e.g. such as the lines for said grid).

22. In regard to claim 5 the rationale disclosed in the rejection of claim 4 is incorporated herein (Kershner et al. – Fig. 11).

23. In regard to claim 6 Kershner et al. teaches that the interconnected polygons 360 of the perspective video image 400 of the 3D threat envelope are preferably displayed as semi-transparent so that the features of the external world are visible to the pilot through the interconnecting polygons 360 (col. 20, lines 33-37). It is implicitly taught that said grid lines (Kershner et al. – col. 24, lines 58-66) which define, at least in part, said polygons would also be semi-transparent.

24. In regard to claim 12 the rationale disclosed in the rejection of claim 4 is incorporated herein.

25. In regard to claim 13 the rationale disclosed in the rejection of claim 4 is incorporated herein.

26. In regard to claim 14 the rationale disclosed in the rejection of claim 6 is incorporated herein.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter-Anthony Pappas whose telephone number is 571-272-7646. The examiner can normally be reached on M-F 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ulka Chauhan can be reached on 571-272-7782. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Peter-Anthony Pappas
Examiner
Art Unit 2628

PP

Ulka J. Chauhan
Supervisory Patent Examiner